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Atkinson Co.

Report on Upper Cretaceous fossils from well of Sun Oil  
Company, Doster-Ladson No. 1, Lot 71, L.D. &, Atkinson  
County, Georgia

By L. W. Stephenson

The oil-prospecting well, Doster-Ladson No 1, located on lot 71, L. D. 7, Atkinson County, Ga., was drilled by the Sun Oil Company. Drilling was begun December 7, 1944, and the well was completed and abandoned as a nonproducer January 31, 1945. Mainly unconsolidated sediments of the Coastal Plain were penetrated to a depth of about 4,280 feet, where hard basement rock was encountered. The well was abandoned in the basement rock at a depth of 4,296 feet. A core sample of the basement rock, reported to have been taken near the bottom of the hole, was examined by C. S. Ross, of the U. S. Geological Survey, who reports that this rock appears to be a metamorphosed shale.

One hundred and forty-eight cores were cut at depths ranging from 722 feet to the bottom of the hole. The cores were made available to all comers for cutting on Wednesday, May 4, 1945, and D.H. Eargle, representing the U.S. Geological Survey, secured samples ranging in depth from 2,150 feet to the bottom of the hole. His purpose was to obtain samples containing macrofossils. Not all of the material collected contained specimens of larger fossils, and a goodly number contained only fragments or poorly preserved shells of little value in determining the age of the containing beds. Nevertheless, a few identifiable diagnostic fossils were obtained, which are of value in dating part of the section. The list given below includes all the recognizable genera and species, and those believed to have more or less value in correlation are underscored.

List of macrofossils from Doster-Ladson well No. 1

- Core 23, depth 2447-2457' (bottom); sandy chalk. *Ostrea* sp. (small, irregular)
- Core 27, depth 2678-2688' argillaceous, calcareous, micaceous sand. *Nucula* sp. (frag.)
- Core 62, depth 2823-2833' calcareous, micaceous sand. *Ostrea* sp. (small, irregular)
- Core 65, depth 2853-2863' (top); calcareous sand with scattered glauconite grains. *Inoceramus* sp. (fragments). *Ostrea* sp. (small, irregular)
- Core 67, depth 2873-2883'; calcareous, argillaceous sand. *Inoceramus* sp. (small, irreg.)
- Core 69, depth 2893-2903' (bottom); sandy chalk. *Ostrea* sp. (small, irregular).
- Core 70, depth 2903-2913' (top); sandy chalk. *Ostrea* sp. (small, aff. *O. plumosa* Morton)
- Core 70 (middle); same as preceding. *Ostrea* sp. (small, irregular; aff. *O. plumosa* \*)
- Core 70 (bottom 1 foot); same as preceding. *Ostrea* sp. (aff. *O. plumosa* Morton)
- Core 71, depth 2913-2923'; calcareous, sandy, micaceous clay. *Inoceramus* sp. (fragments). *Ostrea* sp. (aff. *O. plumosa* Morton)
- Core 73, depth 2933-2945' (top) sandy chalk. *Terebratulina* sp. (aff. *T. filosa* Conrad), (idem. by G. A. Cooper).
- Core 73 (bottom) calcareous, argillaceous, micaceous sand. *Inoceramus* sp. (large, smooth fragment extending across the core).
- Core 74, depth 2943-2953' (top) calcareous, micaceous shale. *Ostrea* sp. (small, thin)
- Core 76, depth 2963-2968' calcareous, micaceous shale. Small crushed gastropod.
- Core 79, depth 2986-2996' calcareous, micaceous shale. *Inoceramus* sp. (fragments)
- Core 79 (top) chalky, micaceous clay. *Terebratulina* sp. (fragments)
- Core 80, depth 2996-3005' (top) argillaceous, glauconitic chalk. *Inoceramus* sp. (large) Ammonite (Phosphatized fragments)
- Core 80 (1½' below top) same as preceding. *Inoceramus* sp. (large, smooth).
- Core 80 (bottom half) argillaceous, micaceous chalk. *Inoceramus* sp. (large, smooth). *Ostrea* sp. (small, thin). *Pecten* sp. (small, smooth, thin).
- Core 81, depth 3005-3015' (top) calcareous, argillaceous sand. *Inoceramus* sp. (large, smooth)
- Core 82, depth 3015-3025' sandy, calcareous, micaceous shale. *Ostrea* sp. (small, irreg., thin)
- Core 84, depth 3035-3045' strongly argillaceous and sandy, micaceous chalk. *Inoceramus* sp. (large, smooth). *Ostrea* sp. (aff. *O. plumosa* Morton). *Anomia* sp. (small).
- Core 85, depth 3045-3055' (top) very argillaceous and sandy, micaceous chalk. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). *Ostrea* sp. (aff. *O. plumosa* Morton).
- Core 85, (just below top) same as preceding. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). *Ostrea* sp. (small).
- Core 85 (middle) same as preceding. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). Fish scale.
- Core 85 (bottom) same as preceding. *Inoceramus* sp.
- Core 86, depth 3055-3065' (top) very sandy, very argillaceous chalk, with phosphatic nodules. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). *Ostrea* sp. (small irregular).
- Core 86, depth 3055-3065' (2' below top) calcareous, more or less sandy shale. *Inoceramus* sp. (with fine concentric markings).
- Core 87, depth 3065-3075' (top) calcareous, more or less sandy shale. *Inoceramus* sp. (frag.)
- Core 87, middle, same as preceding. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). Fish scale.
- Core 88, depth 3075-3085' (top) calcareous, more or less sandy shale. *Nuculana* sp. *Inoceramus* sp. (fragments). *Ostrea* sp. (small, thin).
- Core 88, (middle) same as preceding. *Inoceramus* sp. (aff. *I. undulaticus* Roemer). *Ostrea* sp. (small, thin). *Platystrophia* sp. (fragments)

- Core 88 (bottom) same as preceding. Inoceramus sp. (elongated, with fine concentric markings). Ostrea sp. (small, irregular, thin).
- Core 89, depth 3085-3095' (top) calcareous, sandy shale. Inoceramus sp. (aff. I. undulatoplicatus Roemer).
- Core 89 (middle) same as preceding. Inoceramus sp. (with fine concentric markings). Ostrea sp. (small, irregular, thin).
- Core 89 (base) same as preceding. Nucula sp. (crushed imprint). Inoceramus sp. (frag.). Ostrea sp. (small, irregular, thin).
- Core 90, depth 3095-3105' (top) calcareous, sandy shale. Inoceramus sp. (fragments). Ostrea sp. (small, thin).
- Core 90 (middle) same as preceding. Inoceramus sp. (with fine concentric markings); Ostrea sp. (small, irregular, thin).
- Core 90 (bottom) same as preceding. Inoceramus sp. (frag.). Ostrea sp. (small).
- Core 91, depth 3105-3115' calcareous, sandy shale. Inoceramus sp. (fragments). Ostrea sp. (small, irregular). Crustacean claw (very poor).
- Core 92, depth 3115-3125' (top) calcareous shale. Inoceramus sp. (fragments). Ostrea sp. (fragments).
- Core 92, (bottom). Ostrea sp. (small, irregular). Pecten (Camptonectes) sp. (small, thin).
- Core 93, depth 3125-3135' calcareous, sandy shale. Inoceramus sp. (fragments). Ostrea sp. (small, irregular). Crustacean clay (poor).
- Core 94, depth 3135-3145' chalky, micaceous sand. Inoceramus sp. (fragment). Ostrea sp. (small, irregular). Gryphaea aucella Roemer.
- Core 94, depth 3135-3145' (bottom) strongly glauconitic, calcareous sand. Ostrea oleana Stephenson?, (varietal form), numerous. Anomia sp.
- Core 100, depth 3195-3205' very sandy; micaceous, calcareous shale. "Corbula" sp. (poor).
- Core 101, depth 32-5-3215' strongly argillaceous, micaceous, calcareous shale. Fish bone.
- Core 103, Depth 3225-3235' very sandy, calcareous shale. Nuculana sp. (poor). Baculites? sp. (small, poor).
- Core 105, depth 3245-3255' calcareous, micaceous shale. Placenticerus? sp.
- Core 109, depth 3271-3276' calcareous, argillaceous, strongly micaceous, rather coarse sand. Ostrea sp. (fragments, thick-shelled fluted).
- Core 111, depth 3286-3293' (bottom) calcareous, micaceous, clear quartz sandstone. Ostrea cretacea Morton (numerous). Anomia sp.
- Core 115, depth 3318-3328' (top) very sandy, micaceous, slightly calcareous shale. Nuculena sp. Ostrea sannionia White. Ostrea sp. (cf. O. cretacea Morton).
- Core 115 (middle). Nuculana sp. Ostrea sannionis White. Ostrea sp. (cf. O. cretacea Morton).
- Core 115 (lower middle) friable, medium to coarse, poorly sorted, calcareous, slightly glauconitic sand; sand grains sharply angular. Ostrea sp. (cf. O. cretacea Morton). "Corbula" sp.
- Core 115 (2½' above bottom) same as preceding. Ostrea sannionis White. Ostrea sp. (cf. O. cretacea Morton).
- Core 145, depth 3698-3718' (upper part) light gray, calcareous, strongly micaceous sandstone, with scattered lignitized plant fragments; conglomeratic at base of upper part. Ostrea sp. (with fine ribs). Ostrea sp. (smooth).

Only those fossils believed to have value in correlation are discussed in the notes which follow.

Shells identified as Inoceramus sp. (aff. I. undulatoaplicatus Roemer) were obtained at several levels between depths of 3,045 and about 3,086 feet, that is through a thickness of about 41 feet. A positive identification could not be made, because the shells are fragmentary and represent young stages of growth, but the specimens are very nearly related to, if not identical with, Roemer's species. In Texas this species occupies a restricted zone near or above the middle of the Austin chalk, where that formation is most fully developed.

The specimens of Inoceramus with fine concentric markings, recorded from the bottom of core 90 (depth about 3,105 feet), can be matched approximately in specimens from the lower half of the Austin chalk of Texas.

Gryphaea aucella Roemer, a good specimen of which was found in core 94 (depth 3,135 to 3,145 feet), is a characteristic Austin chalk species, having a vertical range from bottom to top of that unit.

The shells identified as Ostrea oleana Stephenson? (see Jour. Paleon., vol. 19, no. 1, pp. 72-74, figs. 1-7, 1945) are closely similar to that species in outline and surface markings, but are flatter and less curved in profile and are considered to be a varietal form.

Ostrea cretacea Morton, from the bottom of core 111 (depth about 3,293 feet) and probably present in core 115, was originally described from the Tombigbee sand at Erie Bluff on Tombigbee River, Hale County, Ala., and has since been collected at other localities in that unit.

Ostrea sannionis White, found in core 115, depth 3313-3328 feet, was first described from beds in Utah now known to be of lower Niobrara age. The species is recorded from one locality near Woodland in Red River County, Tex. (see U.S. Geol. Survey Prof. Paper 154-F, pp. 196-197, 1929); there the species is in a tuffaceous sandstone immediately below the Ector tongue of the Austin chalk, and a few feet above a thin, coarse conglomerate that is generally accepted as marking the base of beds of Austin age in that area.

From the foregoing data it seems reasonable to conclude that the beds penetrated between depths of 3,045 and 3,328 feet in the Doster-Ladson No. 1 well are of the age of the middle and lower parts of the Austin chalk, and that core 115 (depth 3318-3328) is near the base of the beds of that age.

No fossils indicative of Eagle Ford age were recognized in the material examined. The cores in hand between depths of 3,328 and 3,698 feet are barren of fossils. A few fragments of Ostrea sp. were obtained from core 145 (depth 3698-3718 feet), but they were too incomplete for specific identification.